

## Claims

We claim:

- 1           1. A mapping table for referencing rows of a primary B+tree, the mapping table  
2 comprising:  
3           a row for each row of the primary B+tree.
- 1           2. The mapping table according to claim 1, wherein each row of the mapping table  
2 comprises a primary key value from the primary B+tree.
- 1           3. The mapping table according to claim 1, wherein the mapping table provides  
2 one-to-one mapping between primary keys of the primary B+tree structure and physical  
3 row identifiers of the mapping table.
- 1           4. The mapping table according to claim 1, wherein each row of the mapping table  
2 comprises a guess-DBA, database block address of a leaf block of the primary B+tree,  
3 where the corresponding primary B+tree row is likely to be found.
- 1           5. A primary B+tree, comprising:  
2 mapping table row identifiers stored in each row of the primary B+tree, the mapping table

3 row identifiers comprising a physical row identifier of a corresponding mapping table  
4 row.

1 6. The primary B+tree according to claim 5, wherein the mapping table row  
2 identifiers are stored at a fixed offset from a beginning of each row of the primary B+tree.

1 7. An auxiliary structure for a primary B+tree, the auxiliary structure comprising:  
2 row identifiers of corresponding mapping table rows, the row identifiers referring to a  
3 primary B+tree row.

1 8. A method for loading/populating a primary B+tree having an associated  
2 mapping table, the method comprising:  
3 generating a row of the mapping table for each row of the primary B+tree; and  
4 storing in each row of the mapping table a row identifier for a corresponding row  
5 of the primary B+tree, the row identifier comprising a primary key column value for each  
6 row of the primary B+tree and a guess-DBA.

1 9. A method for maintaining a circular dependency between a mapping table row  
2 and a primary B+tree row, the method comprising:

3 computing a length of a mapping table row based upon a length of a primary key  
4 and an overhead of a guess-DBA;

5           utilizing the computed length to identify a mapping table block that can  
6   accommodate the row;  
7           reserving a slot in the identified mapping table block, wherein an address of the  
8   block and a reserved slot form a mapping table physical row identifier;  
9           inserting a primary B+tree row containing the physical row identifier into the  
10   primary B+tree;  
11          utilizing a leaf block address of the primary B+tree row to construct a row of the  
12   mapping table; and  
13          inserting the mapping table row in the reserved slot.

10. The method according to claim 9, further comprising:  
carrying out a partition maintenance operation on the primary B+tree; and  
rebuilding the mapping table after the partition maintenance.

11. The method according to claim 9, further comprising:  
carrying out a partition maintenance operation on the primary B+tree; and  
maintain the mapping table during the partition maintenance.

12. The method according to claim 9, further comprising:  
carrying out a partition maintenance operation on the primary B+tree and  
rebuilding the mapping table on-line.

13. A computer program product for performing a process for indexing a primary B+tree, the computer program product comprising:

- a computer readable medium; and
- computer program instructions, recorded on the computer readable medium, executable by a processor, for performing the steps of:
  - generating a row of a mapping table for each row of the primary B+tree; and
  - storing in each row of the mapping table a row identifier for a corresponding row of the primary B+tree, the identifier comprising a primary key column value and a guess-database address for each row of the primary B+tree.

14. A system for performing a process for indexing a primary B+tree, the system comprising:

- a processor operable to execute computer program instructions; and
- a memory operable to store computer program instructions executable by the processor, for performing the steps of:
  - generating a row of a mapping table for each row of the primary B+tree; and
  - storing in each row of the mapping table a row identifier for a corresponding row of the primary B+tree, the identifier comprising a primary key column value and a guess-database address for each row of the primary B+tree.